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**Intermountain
Forest and Range
Experiment Station
Ogden, UT 84401**

Resource
Bulletin
INT-26

April 1982

Forest Area and Timber Resource Statistics for State and Private Lands in Northwestern Montana, 1977

Dorothy G. Felt
Velma J. Sterrett

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SUMMARY

Presents land area, commercial timberland area, timber inventory, growth, and mortality data based on Resources Evaluation standards.

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INTRODUCTION

This resource bulletin presents the principal findings of the second forest inventory of State and private lands in northwestern Montana, which include Lincoln, Flathead, Sanders, and Lake Counties (fig. 1). Data collection began in January 1977 and was completed in November 1977. This bulletin does not note changes and trends since the inventory of western Montana in 1958, nor does it contain estimates of timber removals. These items will be included in the State Analytical Report to be published in the near future.

The primary objective of Resources Evaluation, a continuing nationwide undertaking conducted by the USDA Forest Service, is to provide an assessment of the renewable resource situation on the Nation's forest and range lands. Fundamental to the accomplishment of this objective are the periodic State-by-State resource inventories. Originally, Resources Evaluation--formerly Forest Survey--was authorized by the McSweeney-McNary Act of 1928. The current authorization is through the Renewable Resources Research Act of 1978.

The resource inventories for the Rocky Mountain States of Arizona, Colorado, Idaho, Montana, New Mexico, Nevada, Utah, Wyoming, and western South Dakota are administered by the Intermountain Forest and Range Experiment Station, with headquarters in Ogden, Utah. These inventories provide information on the extent and condition of State and privately owned forest lands, volume of timber, and rates of timber growth and mortality. These data, when combined with similar information on Federal lands, provide a basis for the formulation of forest policies and programs and for the orderly development and use of the resources.

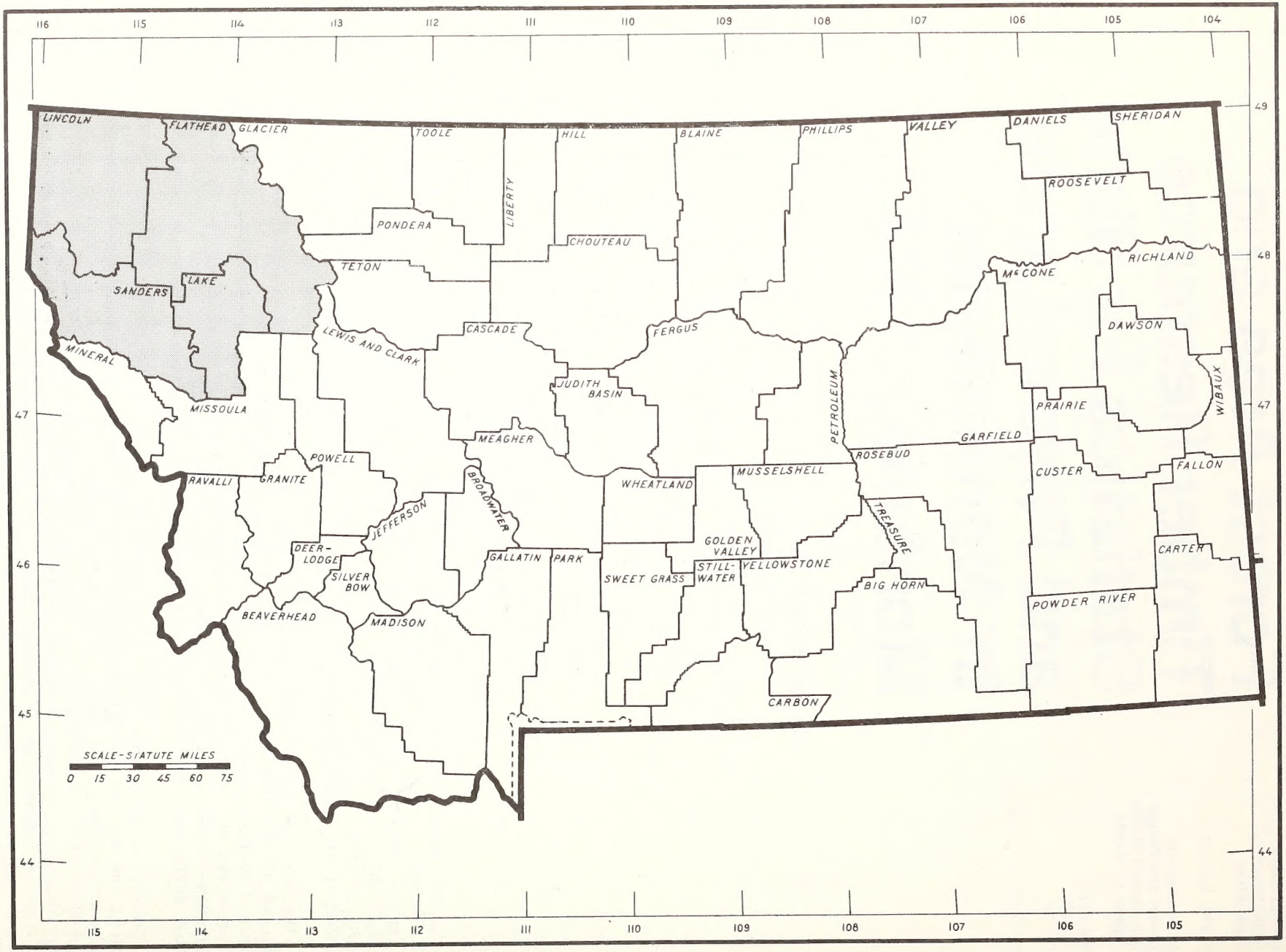

Figure 1.--Northwestern Montana Counties; Lincoln, Flathead, Sanders, and Lake.

HIGHLIGHTS

Area

- State and private lands account for 2,573 thousand acres (1 041 thousand hectares), 31 percent of the total land area in northwestern Montana (fig. 2).
- Forests occupy 1,602 thousand acres (648 thousand hectares) including reserved land, 62 percent of the total State and private land area in the working circle.
- Of the forest land, 1,581 thousand acres (640 thousand hectares), almost 99 percent, are classified as commercial timberland.
- Private ownership accounts for 1,301 thousand acres (527 thousand hectares), 82 percent of the commercial timberland.
- Douglas-fir, lodgepole pine, ponderosa pine, and larch are the predominant forest types and occupy 82 percent of the commercial timberland.
- Almost 50 percent of the commercial timberland is in the 50- to 84-cubic foot productivity class and 82 percent of such land is privately owned.

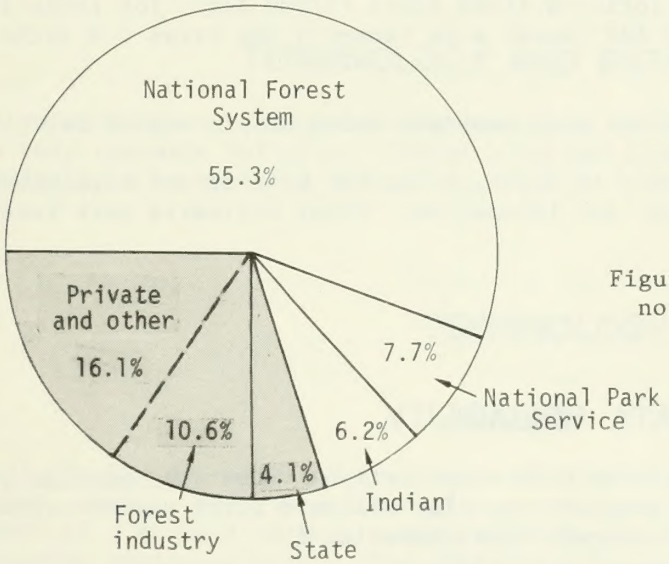

Figure 2.--Total land area in northwestern Montana by ownership.

Inventory

- Growing stock volume amounts to 2,790 million cubic feet (79 million cubic meters) and sawtimber volume totals 10,346 million board feet.[1]
- Rough, rotten, and salvable dead trees comprise 160 million cubic feet (4.5 million cubic meters), 5 percent of the total sound wood volume.
- The largest share of the total growing stock volume is made up of Douglas-fir (32 percent), lodgepole pine (20 percent), western larch (18 percent), and ponderosa pine (10 percent). The remaining percentage is made up of 10 other species (table 16).
- Private owners control almost 79 percent of the total growing stock and 77 percent of the sawtimber volume.

---

[1]International 1/4-inch rule.

Growth and Mortality

- Net annual growth totals 65,904 thousand cubic feet (1 866 thousand cubic meters).
- Eighty percent of the total net growth is on private lands.
- The annual mortality of 12,956 thousand cubic feet (367 thousand cubic meters) offsets 16 percent of the gross annual growth.

HOW THE INVENTORY WAS CONDUCTED

The inventory was designed to provide reliable statistics primarily at the State and working circle levels. Procedures were as follows:

1. Initial area estimates were based on the classification of 20,985 sample points systematically placed on the latest aerial photographs available. The sample points were summarized and grouped into strata for subsequent field sampling. The photo points, adjusted to meet known land areas, were used to compute area expansion factors for the field samples.

2. Land classification and estimates of timber characteristics and volume were based on observations and measurements recorded at 701 ground sample locations. Sample trees were selected using a 10-point cluster which includes fixed plots (1/300 acre) for trees less than 5.0 inches d.b.h. and variable plots (40 BAF [basal area factor]) for trees 5.0 inches d.b.h. or larger.

3. For most species, volume and defect were computed using Kemp's equations.

4. All photo and field data were sent to Ogden, Utah, for editing and were punched onto cards for machine computing, sorting, and tabulation. Final estimates were based on statistical summaries of the data.

DATA RELIABILITY

Individual cells within tables should be used with caution. Some are based on very small sample sizes, and so result in high sampling errors. The standard error percents shown in tables 1 and 2 were calculated at the 67 percent confidence level.

Table 1.--*Area of forest land in northwestern Montana, with percent standard error, 1977*

Item	Softwood types		Hardwood types		All types	
	Acres	Percent standard error	Acres	Percent standard error	Acres	Percent standard error
Commercial timberland	1,560,851	1.1	19,902	48.5	1,580,753	1.1
Other forest land:						
Unproductive nonreserved	12,480	24.2	1,341	30.2	13,821	22.1

Table 2.--*Net volume, net annual growth, and annual mortality of growing stock and sawtimber on commercial timberland in northwestern Montana, with percent standard error, 1977*

Item	Softwoods		Hardwoods		All species	
	Volume	Percent standard error	Volume	Percent standard error	Volume	Percent standard error
Net volume:						
Growing stock (M cubic feet)	2,735,117	3.2	54,798	23.1	2,789,915	3.2
Sawtimber (M board feet[1])	10,231,082	4.1	115,318	31.1	10,346,400	4.1
Net annual growth:						
Growing stock (cubic feet)	64,127,628	5.4	1,776,553	23.6	65,904,181	5.3
Sawtimber (board feet[1])	226,614,913	6.3	7,157,344	50.0	233,772,257	6.2
Annual mortality:						
Growing stock (cubic feet)	12,788,411	11.1	167,545	73.5	12,955,956	11.0
Sawtimber (board feet[1])	40,329,750	14.9	--	--	40,329,750	14.9

[1]International 1/4-inch rule.

TERMINOLOGY AND DATA TABLES

The following section contains definitions that are relevant to the timber resource data presented in this resource bulletin. Forest area and timber resource data for northwestern Montana are displayed in tables 3 through 24.

TERMINOLOGY

Land

Bureau of the Census.--Area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains; streams, sloughs, estuaries, and canals less than one-eighth of a statute mile in width; and lakes, reservoirs, and ponds less than 40 acres in area. Includes noncensus water. See definition below.

Water

Census water.--As defined by the Bureau of the Census, streams, sloughs, estuaries, and canals more than one-eighth of a statute mile in width; and lakes, reservoirs, and ponds more than 40 acres in area.

Noncensus water.--The same as defined by the Bureau of the Census, except minimum width of streams, sloughs, estuaries, and canals is 120 feet and minimum size of lakes, reservoirs, and ponds is 1 acre.

Land Use Classes

Forest land.--Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use.

Commercial timberland.--Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. (Areas qualifying have the capability of producing in excess of 20 cubic feet per acre per year of industrial wood under management. Currently inaccessible and inoperable areas are included, except when the areas involved are small and unlikely to become suitable for production of industrial wood in the foreseeable future.)

Productive-reserved forest land.--Forest land sufficiently productive to qualify as commercial timberland, but withdrawn from timber utilization through statute, administrative designation, or exclusive use for Christmas tree production.

Other forest land.--Forest land incapable of producing 20 cubic feet per acre of industrial wood under management, because of adverse site conditions; includes both reserved and nonreserved forest land.

Nonforest land.--Land that has never supported forests and lands formerly forested where use for timber management is precluded by development for other uses.

Public Ownership Classes

National Forest lands.--Federal lands legally designated as National Forest or purchase units and other lands under the administration of the Forest Service, including experimental areas and Bankhead-Jones Title III lands.

Bureau of Land Management lands.--Federal lands administered by the Bureau of Land Management.

Indian lands.--Tribal lands held in fee by the Federal Government, but administered for Indian tribal groups and Indian trust allotments.

State lands.--Lands owned by States or lands leased to these governmental units for 50 years or more.

Private and Other

County and municipal lands.--Lands owned by counties and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Forest industry lands.--Lands owned by companies or by individuals operating wood-processing plants.

Farmer-owned lands.--Lands owned by farm operators. (These exclude lands leased by farm operators from such nonfarm owners as railroad companies and States.)

Miscellaneous Federal lands.--Federal lands other than the following: (1) National Forest lands; (2) lands administered by the Bureau of Land Management; and (3) Indian lands.

Miscellaneous private lands.--Privately owned lands other than forest industry and farmer-owned lands.

Forest Type and Tree Species

Forest types.--A classification of forest land based upon the species forming a plurality of live-tree stocking.

Forest trees.--Woody plants having a well-developed stem and usually more than 12 feet in height at maturity.

Commercial species.--Tree species presently or prospectively suitable for industrial wood products.

Softwoods.--Coniferous trees, usually evergreen, having needles or scalelike leaves.

Hardwoods.--Dicotyledonous trees, usually broad-leaved and deciduous.

Area Condition Classes

Stocking.--Stocking is an effort to express the extent to which growing space is effectively utilized by present or potential growing stock trees of commercial species. "Percent of stocking" is synonymous with "percentage of growing space occupied" and means the ratio of actual stocking to full stocking for comparable sites and stands. Basal area is used as a basis for measuring stocking.

"Stocking percentages" express current area occupancy in relation to specified standards for full stocking based on number, size, and spacing of trees considered necessary to fully utilize the forest land.

Full utilization of the site is assumed to occur over a range of basal area. As an interim guide, 60 percent of the normal yield table values has been used to establish the lower limit of this range, which represents full-site occupancy. This is called 100-percent stocking. The upper limit of full stocking has been set at 132 percent. Sites with less than 100-percent stocking represent understocking with less then full-site occupancy. Overstocking is characterized by sites with over 133-percent stocking.

Class 10.--Areas fully stocked (100 to 132 percent) with desirable trees and not overstocked (133 percent or more).

Class 20.--Areas fully stocked with desirable trees, but overstocked with all live trees.

Class 30.--Areas medium to fully stocked (60 to 99 percent) with desirable trees and with less than 30 percent of the area controlled by other trees and/or inhibiting vegetation or surface conditions that will prevent occupancy by desirable trees.

Class 40.--Areas medium to fully stocked with desirable trees and with 30 percent or more of the area controlled by other trees and/or conditions that ordinarily prevent occupancy by desirable trees.

Class 50.--Areas poorly stocked (16.7 to 59 percent) with desirable trees, but fully stocked with growing stock trees.

Class 60.--Areas poorly stocked with desirable trees, but with medium to full stocking of growing stock trees.

Class 70.--Areas nonstocked (less than 16.7 percent) or poorly stocked with desirable trees, and poorly stocked with growing stock trees.

Class 80.--Low-risk old-growth stands.

Class 90.--High-risk old-growth stands.

Nonstocked.--Areas less than 16.7 percent stocked with growing stock trees.

Class of Timber

Growing stock trees.--Live trees of commercial species qualifying as desirable or acceptable trees. (Excludes rough, rotten, and dead trees.)

Desirable trees.--Growing stock trees (1) having no serious defect in quality to limit present or prospective use for timber products; (2) of relatively high vigor; and (3) containing no pathogens that may result in death or serious deterioration before rotation age.

Acceptable trees.--Growing stock trees meeting specified standards of size and quality, but not qualifying as desirable trees.

Rough trees.--(1) Live trees that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and/or do not meet Rocky Mountain regional specifications for freedom from defect primarily because of roughness or poor form; and (2) all live trees of noncommercial species.

Rotten trees.--Live trees that do not contain at least one 12-foot saw log or two noncontiguous saw logs, each 8 feet long or longer, now or prospectively, and/or do not meet Rocky Mountain regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume (cubic-foot basis) in a tree is rotten.

Salvable dead trees.--Standing or down dead trees that are considered merchantable by Rocky Mountain regional standards.

Saw-log portion.--That part of the bole of sawtimber trees between the stump and the saw-log top. A 1-foot stump is used.

Upper-stem portion.--That part of the bole of sawtimber trees above the saw-log top to a minimum top diameter of 4.0 inches outside bark or to the point where the central stem breaks into limbs, whichever occurs first.

Tree Size Classes

Seedlings.--Live trees less than 1.0 inch in diameter at breast height.

Saplings.--Trees 1.0 to 4.9 inches in diameter at breast height.

Poletimber trees.--Trees at least 5.0 inches in d.b.h., but smaller than sawtimber size.

Sawtimber trees.--Trees exceeding poletimber size. In the Intermountain States, the minimum d.b.h. for softwood sawtimber is 9.0 inches and for hardwoods, 11.0 inches.

Volume

Cull volume.--Portions of a tree's volume that are not usable for industrial wood products because of rot, form, or other defect.

Net volume.--Gross volume less deductions for cull.

Growing stock volume.--Net volume in cubic feet of live sawtimber trees and live poletimber trees from stump to a minimum 4.0-inch top (of central stem) outside bark. Net volume equals gross volume less deduction for rot and missing bole sections.

Sawtimber volume.--Net volume in board feet of sawtimber trees of commercial species. Net volume equals gross volume less deduction for rot, sweep, crook, and other defects that affect use for lumber.

Growth and Mortality

Net annual growth.--The increase in net growing stock volume of a specified size class for a specific year. (Components of net annual growth include the increment in net volume of trees at the beginning of the specific year surviving to its end, plus the net volume of trees reaching the size class during the year, minus the net volume of trees that died during the year, minus the net volume of trees that became rough or rotten trees during the year.)

Mortality.--Number of sound-wood volume of growing stock trees dying from natural causes during a specified period, usually annually.

Site

Site class.--A classification of forest land in terms of inherent capacity to grow crops of industrial wood.

Site classifications are based upon the mean net annual growth of growing stock (not including thinnings or mortality loss) attainable at culmination of mean net annual growth over age. Height-age relationships are usually used as indicators of the specified volume-site class.

Stand-Size Classes

Sawtimber stands.--Stands at least 16.7 percent stocked with growing stock trees, with half or more of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.--Stands at least 16.7 percent stocked with growing stock trees in which half or more of this stocking is in poletimber and/or sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.--Stands at least 16.7 percent stocked with growing stock trees in which more than half of the stocking is saplings and/or seedlings.

Nonstocked land.--Commercial timberland less than 16.7 percent stocked with growing stock trees.

Table 3.--*Total land and water area in northwestern Montana, by ownership class, 1977*

Ownership class	Acres	Hectares
National Forest	4,632,189	1 874 588
Bureau of Land Management	0	0
National Park Service[1]	643,103	260 256
Bureau of Indian Affairs	522,059	211 271
Forest industry	889,036	359 781
State	338,329	136 917
Private and other	1,345,282	544 419
Total land area	8,369,998	3 387 232
Census water	258,610	104 656
Gross area[2]	8,628,608	3 491 888

[1]Not included with miscellaneous Federal ownership (a category of private and other) for purposes of clarity.

[2]U.S. Bureau of the Census, land and water area of the United States, 1970.

Table 4.--*Total land area in northwestern Montana, by major land class and ownership class, 1977*

Land class	Ownership class							
	State		Forest industry		Private[1]		Total	
	Acres	Hectares	Acres	Hectares	Acres	Hectares	Acres	Hectares
Commercial timberland	279,462	113 095	819,407	331 603	481,884	195 013	1,580,753	639 711
Productive reserved	902	365	400	162	4,921	1 991	6,223	2 518
Other forest land:								
Unproductive reserved	--	--	--	--	1,028	416	1,028	416
Unproductive nonreserved	3,199	1 294	2,392	968	8,230	3 331	13,821	5 593
Total forest land	283,563	114 754	822,199	332 733	496,063	200 751	1,601,825	648 238
Nonforest land	54,766	22 163	66,837	27 048	849,219	343 668	970,822	392 879
Total land area	338,329	136 917	889,036	359 781	1,345,282	544 419	2,572,647	1 041 117

[1]On this and all following tables, the private ownership category includes a small portion of miscellaneous Federal and county and municipal ownership.

Table 5.--*Area of commercial timberland in northwestern Montana, by forest type, stand-size class, and site class, 1977*

Forest type and stand-size class	Site class 165+	120-164	85-119	50-84	20-49	All classes
	Acres					
Douglas-fir:						
Sawtimber	--	46,272	121,607	250,612	34,343	452,834
Poletimber	--	--	15,518	67,172	14,847	97,537
Sapling and seedling	--	--	36,639	79,900	52,433	168,972
Nonstocked	--	--	--	6,328	--	6,328
Total	--	46,272	173,764	404,012	101,623	725,671
Western hemlock:						
Sawtimber	--	--	3,827	--	--	3,827
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	4,259	--	--	--	4,259
Nonstocked	--	--	--	--	--	--
Total	--	4,259	3,827	--	--	8,086
Ponderosa pine:						
Sawtimber	1,448	5,678	27,482	50,531	4,230	89,369
Poletimber	--	4,423	1,447	7,879	--	13,749
Sapling and seedling	--	--	606	11,245	11,562	23,413
Nonstocked	--	--	4,426	1,255	6,539	12,220
Total	1,448	10,101	33,961	70,910	22,331	138,751
Western white pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	3,998	--	--	--	3,998
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	3,998	--	--	--	3,998
Lodgepole pine:						
Sawtimber	--	4,269	39,805	45,080	5,457	94,611
Poletimber	5,011	12,316	34,818	66,607	12,745	131,497
Sapling and seedling	--	7,017	8,440	21,138	26,656	63,251
Nonstocked	--	--	--	--	--	--
Total	5,011	23,602	83,063	132,825	44,858	289,359
Larch:						
Sawtimber	4,259	9,723	43,609	39,201	1,453	98,245
Poletimber	--	--	2,211	5,011	--	7,222
Sapling and seedling	--	--	7,530	18,328	6,175	32,033
Nonstocked	--	--	--	682	--	682
Total	4,259	9,723	53,350	63,222	7,628	138,182
Western redcedar:						
Sawtimber	--	--	21,502	5,774	--	27,276
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	21,502	5,774	--	27,276
Whitebark pine:						
Sawtimber	--	--	--	792	5,736	6,528
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	1,326	1,326
Total	--	--	--	792	7,062	7,854

Table 5 (con.)

Forest type and stand-size class	Site class 165+	120-164	85-119	50-84	20-49	All classes
	Acres					
Grand fir:						
Sawtimber	4,269	2,809	33,919	15,840	--	56,837
Poletimber	--	--	1,405	--	--	1,405
Sapling and seedling	--	4,426	6,486	792	--	11,704
Nonstocked	--	--	--	--	--	--
Total	4,269	7,235	41,810	16,632	--	69,946
Subalpine fir:						
Sawtimber	--	5,673	14,101	14,877	4,202	38,853
Poletimber	--	--	5,108	--	--	5,108
Sapling and seedling	--	--	2,725	33,146	12,696	48,567
Nonstocked	--	--	--	--	--	--
Total	--	5,673	21,934	48,023	16,898	92,528
Engelmann spruce:						
Sawtimber	--	5,403	19,976	11,330	--	36,709
Poletimber	--	--	3,827	9,110	--	12,937
Sapling and seedling	--	--	--	7,835	--	7,835
Nonstocked	--	--	--	--	--	--
Total	--	5,403	23,803	28,275	--	57,481
Juniper:[1]						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	1,719	--	1,719
Nonstocked	--	--	--	--	--	--
Total	--	--	--	1,719	--	1,719
Aspen:						
Sawtimber	--	4,260	--	--	--	4,260
Poletimber	--	3,659	--	--	--	3,659
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	7,919	--	--	--	7,919
Cottonwood:						
Sawtimber	--	--	1,255	--	6,508	7,763
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	1,255	--	6,508	7,763
Other hardwoods:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	4,220	--	4,220
Nonstocked	--	--	--	--	--	--
Total	--	--	--	4,220	--	4,220
All types:						
Sawtimber	9,976	84,087	327,083	434,037	61,929	917,112
Poletimber	5,011	24,396	64,334	155,779	27,592	277,112
Sapling and seedling	--	15,702	62,426	178,323	109,522	365,973
Nonstocked	--	--	4,426	8,265	7,865	20,556
Total	14,987	124,185	458,269	776,404	206,908	1,580,753

[1]On this and all following tables, the area occupied by juniper classified as commercial is so classified because the site index for other associated species on these stands (usually ponderosa pine or Douglas-fir) was high enough to indicate a site potential productivity level exceeding 20 cubic feet per acre per year average annual growth, and nonstockable indicators were not present in sufficient quantities to lower the yield capability below 20 cubic feet per acre per year.

Although juniper usually occurs on unproductive forest land, when it occurs in mixtures with other species on productive sites, it is reported in the commercial timberland statistics.

Table 6.--*Area of State-owned commercial timberland in northwestern Montana, by forest type, stand-size class, and site class, 1977*

Forest type and stand-size class	Site class 165+	120-164	85-119	50-84	20-49	All classes
	Acres					
Douglas-fir:						
Sawtimber	--	10,702	30,392	39,416	4,302	84,812
Poletimber	--	--	3,387	7,780	1,898	13,065
Sapling and seedling	--	--	4,077	7,480	1,442	12,999
Nonstocked	--	--	--	1,996	--	1,996
Total	--	10,702	37,856	56,672	7,642	112,872
Western hemlock:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--
Ponderosa pine:						
Sawtimber	1,448	1,498	1,562	1,670	641	6,819
Poletimber	--	18	1,447	13	--	1,478
Sapling and seedling	--	--	606	2,638	17	3,261
Nonstocked	--	--	--	320	--	320
Total	1,448	1,516	3,615	4,641	658	11,878
Western white pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	36	--	--	--	36
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	36	--	--	--	36
Lodgepole pine:						
Sawtimber	--	--	5,779	9,984	4,522	20,285
Poletimber	804	72	6,340	14,904	36	22,156
Sapling and seedling	--	2,810	26	4,237	2,341	9,414
Nonstocked	--	--	--	--	--	--
Total	804	2,882	12,145	29,125	6,899	51,855
Larch:						
Sawtimber	79	1,441	5,801	12,394	1,453	21,168
Poletimber	--	--	2,211	804	--	3,015
Sapling and seedling	--	--	3,272	2,727	1,855	7,854
Nonstocked	--	--	--	682	--	682
Total	79	1,441	11,284	16,607	3,308	32,719
Western redcedar:						
Sawtimber	--	--	109	1,453	--	1,562
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	109	1,453	--	1,562
Whitebark pine:						
Sawtimber	--	--	--	792	1,405	2,197
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	1,326	1,326
Total	--	--	--	792	2,731	3,523

Table 6 (con.)

Forest type and stand-size class	Site class 165+	120-164	85-119	50-84	20-49	All classes
	Acres					
Grand fir:						
Sawtimber	--	2,809	4,335	2,838	--	9,982
Poletimber	--	--	1,405	--	--	1,405
Sapling and seedling	--	--	2,060	792	--	2,852
Nonstocked	--	--	--	--	--	--
Total	--	2,809	7,800	3,630	--	14,239
Subalpine fir:						
Sawtimber	--	1,404	9,832	11,218	4,202	26,656
Poletimber	--	--	682	--	--	682
Sapling and seedling	--	--	2,725	7,683	2,573	12,981
Nonstocked	--	--	--	--	--	--
Total	--	1,404	13,239	18,901	6,775	40,319
Engelmann spruce:						
Sawtimber	--	1,441	2,943	2,792	--	7,176
Poletimber	--	--	--	828	--	828
Sapling and seedling	--	--	--	1,684	--	1,684
Nonstocked	--	--	--	--	--	--
Total	--	1,441	2,943	5,304	--	9,688
Juniper:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--
Aspen:						
Sawtimber	--	80	--	--	--	80
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	80	--	--	--	80
Cottonwood:						
Sawtimber	--	--	320	--	358	678
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	320	--	358	678
Other hardwoods:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	13	--	13
Nonstocked	--	--	--	--	--	--
Total	--	--	--	13	--	13
All types:						
Sawtimber	1,527	19,375	61,073	82,557	16,883	181,415
Poletimber	804	126	15,472	24,329	1,934	42,665
Sapling and seedling	--	2,810	12,766	27,254	8,228	51,058
Nonstocked	--	--	--	2,998	1,326	4,324
Total	2,331	22,311	89,311	137,138	28,371	279,462

Table 7.--*Area of industry-owned commercial timberland in northwestern Montana, by forest type, stand-size class, and site class, 1977*

Forest type and stand-size class	Site class 165+	120-164	85-119	50-84	20-49	All classes
	Acres					
Douglas-fir:						
Sawtimber	--	26,369	68,906	150,356	25,861	271,492
Poletimber	--	--	--	22,193	12,949	35,142
Sapling and seedling	--	--	9,112	29,461	34,587	73,160
Nonstocked	--	--	--	4,332	--	4,332
Total	--	26,369	78,018	206,342	73,397	384,126
Western hemlock:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	4,259	--	--	--	4,259
Nonstocked	--	--	--	--	--	--
Total	--	4,259	--	--	--	4,259
Ponderosa pine:						
Sawtimber	--	--	12,929	30,331	676	43,936
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	8,607	7,139	15,746
Nonstocked	--	--	4,426	338	2,881	7,645
Total	--	--	17,355	39,276	10,696	67,327
Western white pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--
Lodgepole pine:						
Sawtimber	--	4,269	17,272	30,537	338	52,416
Poletimber	--	4,320	20,111	47,496	8,747	80,674
Sapling and seedling	--	--	--	16,304	24,315	40,619
Nonstocked	--	--	--	--	--	--
Total	--	8,589	37,383	94,337	33,400	173,709
Larch:						
Sawtimber	--	4,320	21,386	17,598	--	43,304
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	4,258	11,639	4,320	20,217
Nonstocked	--	--	--	--	--	--
Total	--	4,320	25,644	29,237	4,320	63,521
Western redcedar:						
Sawtimber	--	--	8,538	4,321	--	12,859
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	8,538	4,321	--	12,859
Whitebark pine:						
Sawtimber	--	--	--	--	4,331	4,331
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	4,331	4,331

Table 7 (con.)

Forest type and stand-size class	Site class 165+	120-164	85-119	50-84	20-49	All classes
	Acres					
Grand fir:						
Sawtimber	4,269	--	21,660	13,002	--	38,931
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	4,426	4,426	--	--	8,852
Nonstocked	--	--	--	--	--	--
Total	4,269	4,426	26,086	13,002	--	47,783
Subalpine fir:						
Sawtimber	--	4,269	4,269	--	--	8,538
Poletimber	--	--	4,426	--	--	4,426
Sapling and seedling	--	--	--	20,611	5,102	25,713
Nonstocked	--	--	--	--	--	--
Total	--	4,269	8,695	20,611	5,102	38,677
Engelmann spruce:						
Sawtimber	--	--	13,071	4,269	--	17,340
Poletimber	--	--	--	4,320	--	4,320
Sapling and seedling	--	--	--	409	--	409
Nonstocked	--	--	--	--	--	--
Total	--	--	13,071	8,998	--	22,069
Juniper:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--
Aspen:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--
Cottonwood:						
Sawtimber	--	--	338	--	408	746
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	338	--	408	746
Other hardwoods:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--
All types:						
Sawtimber	4,269	39,227	168,369	250,414	31,614	493,893
Poletimber	--	4,320	24,537	74,009	21,696	124,562
Sapling and seedling	--	8,685	17,796	87,031	75,463	188,975
Nonstocked	--	--	4,426	4,670	2,881	11,977
Total	4,269	52,232	215,128	416,124	131,654	819,407

Table 8.--*Area of privately owned commercial timberland in northwestern Montana, by forest type, stand-size class, and site class, 1977*

Forest type and stand-size class	Site class 165+	120-164	85-119	50-84	20-49	All classes
	Acres					
Douglas-fir:						
Sawtimber	--	9,201	22,309	60,840	4,180	96,530
Poletimber	--	--	12,131	37,199	--	49,330
Sapling and seedling	--	--	23,450	42,959	16,404	82,813
Nonstocked	--	--	--	--	--	--
Total	--	9,201	57,890	140,998	20,584	228,673
Western hemlock:						
Sawtimber	--	--	3,827	--	--	3,827
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	3,827	--	--	3,827
Ponderosa pine:						
Sawtimber	--	4,180	12,991	18,530	2,913	38,614
Poletimber	--	4,405	--	7,866	--	12,271
Sapling and seedling	--	--	--	--	4,406	4,406
Nonstocked	--	--	--	597	3,658	4,255
Total	--	8,585	12,991	26,993	10,977	59,546
Western white pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	3,962	--	--	--	3,962
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	3,962	--	--	--	3,962
Lodgepole pine:						
Sawtimber	--	--	16,754	4,559	597	21,910
Poletimber	4,207	7,924	8,367	4,207	3,962	28,667
Sapling and seedling	--	4,207	8,414	597	--	13,218
Nonstocked	--	--	--	--	--	--
Total	4,207	12,131	33,535	9,363	4,559	63,795
Larch:						
Sawtimber	4,180	3,962	16,422	9,209	--	33,773
Poletimber	--	--	--	4,207	--	4,207
Sapling and seedling	--	--	--	3,962	--	3,962
Nonstocked	--	--	--	--	--	--
Total	4,180	3,962	16,422	17,378	--	41,942
Western redcedar:						
Sawtimber	--	--	12,855	--	--	12,855
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	12,855	--	--	12,855
Whitebark pine:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	--	--	--	--

Table 8 (con.)

Forest type and stand-size class	Site class 165+	120-164	85-119	50-84	20-49	All classes
	Acres					
Grand fir:						
Sawtimber	--	--	7,924	--	--	7,924
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	7,924	--	--	7,924
Subalpine fir:						
Sawtimber	--	--	--	3,659	--	3,659
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	4,852	5,021	9,873
Nonstocked	--	--	--	--	--	--
Total	--	--	--	8,511	5,021	13,532
Engelmann spruce:						
Sawtimber	--	3,962	3,962	4,269	--	12,193
Poletimber	--	--	3,827	3,962	--	7,789
Sapling and seedling	--	--	--	5,742	--	5,742
Nonstocked	--	--	--	--	--	--
Total	--	3,962	7,789	13,973	--	25,724
Juniper:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	1,719	--	1,719
Nonstocked	--	--	--	--	--	--
Total	--	--	--	1,719	--	1,719
Aspen:						
Sawtimber	--	4,180	--	--	--	4,180
Poletimber	--	3,659	--	--	--	3,659
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	7,839	--	--	--	7,839
Cottonwood:						
Sawtimber	--	--	597	--	5,742	6,339
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	--	--	--
Nonstocked	--	--	--	--	--	--
Total	--	--	597	--	5,742	6,339
Other hardwoods:						
Sawtimber	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--
Sapling and seedling	--	--	--	4,207	--	4,207
Nonstocked	--	--	--	--	--	--
Total	--	--	--	4,207	--	4,207
All types:						
Sawtimber	4,180	25,485	97,641	101,066	13,432	241,804
Poletimber	4,207	19,950	24,325	57,441	3,962	109,885
Sapling and seedling	--	4,207	31,864	64,038	25,831	125,940
Nonstocked	--	--	--	597	3,658	4,255
Total	8,387	49,642	153,830	223,142	46,883	481,884

Table 9.--*Area of commercial timberland in northwestern Montana, by stand volume and ownership class, 1977*

Stand volume per acre[1]	Ownership class			
	State	Forest industry	Private	All owners
	Acres			
Less than 1,500 board feet	42,060	188,462	127,323	357,845
1,500 to 4,999 board feet	70,973	207,079	201,397	479,449
5,000 to 9,999 board feet	74,972	220,866	99,961	395,799
10,000 board feet or more	91,457	203,000	53,203	347,660
All classes	279,462	819,407	481,884	1,580,753

[1]International 1/4-inch rule.

Table 10.--*Area of commercial timberland in northwestern Montana, by forest type and area condition class, 1977*

Forest type	Area condition class									Nonstocked	All classes	
	10	20	30	40	50	60	70	80	90			
	Acres											*Hectares*
Douglas-fir	--	683	46,897	57,824	63,405	201,929	95,565	151,505	101,535	6,328	725,671	293 670
Western hemlock	--	--	3,827	--	--	4,259	--	--	--	--	8,086	3 272
Ponderosa pine	3,563	--	6,284	7,928	1,448	27,698	33,636	30,503	15,471	12,220	138,751	56 151
Western white pine	--	--	--	--	3,998	--	--	--	--	--	3,998	1 618
Lodgepole pine	--	20,271	1,114	74,410	98,305	33,328	25,523	6,489	29,919	--	289,359	117 100
Larch	606	15,533	2,615	33,230	32,240	7,504	10,637	27,251	7,884	682	138,182	55 920
Western redcedar	--	--	--	4,260	4,282	4,269	4,423	4,268	5,774	--	27,276	11 038
Whitebark pine	--	--	--	--	--	--	--	--	6,528	1,326	7,854	3 178
Grand fir	606	--	10,596	7,078	--	25,740	4,401	11,568	9,957	--	69,946	28 306
Subalpine fir	--	4,864	8,597	16,334	1,405	19,065	12,681	19,701	9,881	--	92,528	37 445
Engelmann spruce	--	--	3,827	2,118	7,996	26,285	--	11,533	5,722	--	57,481	23 262
Juniper	--	--	--	--	--	--	1,719	--	--	--	1,719	696
Aspen	--	--	--	--	--	4,260	3,659	--	--	--	7,919	3 205
Cottonwood	--	--	--	--	--	--	6,508	--	1,255	--	7,763	3 142
Other hardwoods	--	4,220	--	--	--	--	--	--	--	--	4,220	1 708
All types	4,775	45,571	83,757	203,182	213,079	354,337	198,752	262,818	193,926	20,556	1,580,753	639 711

Table 11.--*Area of productive reserved and other forest land in northwestern Montana, by land class, ownership class, and forest type, 1977*

Land class	Forest type											All types	
	Douglas-fir	Ponderosa pine	Lodgepole pine	Larch	Grand fir	Subalpine fir	Engelmann spruce	Mixed softwoods	Total softwoods	Mixed hardwoods	Total hardwoods		
	Thousand acres												Percent
Productive reserved area													
State	371	55	169	113	37	100	26	18	889	13	13	902	365
Forest industry	190	35	78	31	21	19	11	12	397	3	3	400	162
Private	2,344	489	624	422	91	69	358	199	4,596	325	325	4,921	1 991
Total	2,905	579	871	566	149	188	395	229	5,882	341	341	6,223	2 518
Other forest land area:													
Unproductive reserved:													
State	--	--	--	--	--	--	--	--	--	--	--	--	--
Forest industry	--	--	--	--	--	--	--	--	--	--	--	--	--
Private	65	--	--	--	--	65	--	778	908	120	120	1,028	416
Total	65	--	--	--	--	65	--	778	908	120	120	1,028	416
Unproductive nonreserved:													
State	321	--	--	--	--	320	--	2,558	3,199	--	--	3,199	1 294
Forest industry	338	--	--	--	--	338	--	1,472	2,148	244	244	2,392	968
Private	2,316	1,720	--	--	--	597	--	2,500	7,133	1,097	1,097	8,230	3 331
Total	2,975	1,720	--	--	--	1,255	--	6,530	12,480	1,341	1,341	13,821	5 593
Total all areas:													
State	692	55	169	113	37	420	26	2,576	4,088	13	13	4,101	1 659
Forest industry	528	35	78	31	21	357	11	1,484	2,545	247	247	2,792	1 130
Private	4,725	2,209	624	422	91	731	358	3,477	12,637	1,542	1,542	14,179	5 738
Total acres	5,945	2,299	871	566	149	1,508	395	7,537	19,270	1,802	1,802	21,072	--
Total hectares	2 406	930	353	229	60	610	160	3 050	7 798	729	729	--	8 527

Table 12.--*Number of growing stock trees on commercial timberland in northwestern Montana, by species and diameter class, 1977*

Species	Diameter class (inches at breast height)															All classes
	1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	
	Number of trees															
Douglas-fir	117,499	53,777	34,684	19,631	11,651	7,460	4,284	2,965	1,777	873	480	268	141	89	78	255,657
Ponderosa pine	10,915	5,760	5,179	2,617	1,702	1,355	1,051	637	530	337	343	251	163	87	148	31,075
Western white pine	1,400	140	537	324	191	201	219	46	56	35	4	18	3	3	14	3,191
Lodgepole pine	47,120	64,709	38,941	19,121	7,083	2,278	925	183	35	28	9	2	--	--	--	180,434
Whitebark pine	126	--	110	84	110	166	193	113	99	52	21	11	4	3	--	1,092
Western larch	31,293	15,794	11,262	7,425	3,703	2,065	1,735	1,259	925	620	437	299	264	145	219	77,445
Grand fir	18,953	9,766	5,013	2,670	1,635	1,004	657	341	223	115	64	16	10	8	3	40,478
Subalpine fir	23,448	10,096	5,016	2,212	1,362	628	191	144	88	11	2	2	--	--	--	43,200
Engelmann spruce	19,748	5,933	4,144	2,105	1,532	1,071	614	349	224	108	74	35	25	16	17	35,995
Western hemlock	4,321	2,155	809	717	499	120	70	27	78	8	7	--	--	--	--	8,811
Western redcedar	7,251	1,381	950	663	539	510	203	195	108	65	25	7	14	10	30	11,951
Juniper	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total softwoods	282,074	169,511	106,645	57,569	30,007	16,858	10,142	6,259	4,143	2,252	1,466	909	624	361	509	689,329
Aspen	7,952	2,465	637	560	434	171	17	24	18	15	--	--	--	4	3	12,300
Cottonwood	2,013	--	254	267	78	98	75	37	47	26	7	2	--	8	26	2,938
Other hardwoods	14,658	7,304	1,913	865	237	54	5	22	3	--	--	4	--	--	--	25,065
Total hardwoods	24,623	9,769	2,804	1,692	749	323	97	83	68	41	7	6	--	12	29	40,303
All species	306,697	179,280	[illegible]	[illegible]	[illegible]	17,181	[illegible]	[illegible]	4,211	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 13.--*Number of cull and salvable dead trees on commercial timberland in northwestern Montana, by ownership class, and softwoods and hardwoods, 1977*

Ownership class and species group	Cull trees			Salvable dead trees
	Sound	Rotten	Total	
	Thousand trees			
State:				
Softwoods	379	1,015	1,394	3,699
Hardwoods	1	20	21	61
Total	380	1,035	1,415	3,760
Forest industry:				
Softwoods	1,962	1,796	3,758	9,404
Hardwoods	120	96	216	--
Total	2,082	1,892	3,974	9,404
Private:				
Softwoods	1,035	749	1,784	4,183
Hardwoods	186	373	559	249
Total	1,221	1,122	2,343	4,432
All owners:				
Softwoods	3,376	3,560	6,936	17,286
Hardwoods	307	489	796	310
Total	3,683	4,049	7,732	17,596

Table 14.--*Net volume of growing stock on commercial timberland in northwestern Montana, by ownership class, forest type, and stand-size class, 1977*

Ownership class	Forest type	Stand-size class: Sawtimber	Poletimber	Sapling/seedling	Nonstocked	All classes	
		Thousand cubic feet					*Thousand cubic meters*
State:							
	Douglas-fir	194,644	17,264	10,794	432	223,134	6 318
	Western hemlock	--	--	--	--	--	--
	Ponderosa pine	11,471	1,660	1,693	99	14,923	423
	Western white pine	--	37	--	--	37	1
	Lodgepole pine	54,369	60,778	9,017	--	124,164	3 516
	Larch	65,730	6,681	4,197	156	76,764	2 174
	Western redcedar	6,175	--	--	--	6,175	175
	Whitebark pine	3,629	--	--	87	3,716	105
	Grand fir	30,025	1,210	1,226	--	32,461	919
	Subalpine fir	75,301	997	3,938	--	80,236	2 272
	Engelmann spruce	29,572	1,304	420	--	31,296	886
	Juniper	--	--	--	--	--	--
	Aspen	151	--	--	--	151	4
	Cottonwood	403	--	--	--	403	12
	Other hardwoods	--	--	5	--	5	([1])
	All types	471,470	89,931	31,290	774	593,465	16 805
Forest industry:							
	Douglas-fir	567,771	48,166	40,001	391	656,329	18 585
	Western hemlock	--	--	--	--	--	--
	Ponderosa pine	75,591	--	3,734	2,154	81,479	2 307
	Western white pine	--	--	--	--	--	--
	Lodgepole pine	137,532	213,599	11,790	--	362,921	10 277
	Larch	131,937	--	12,927	--	144,864	4 102
	Western redcedar	58,239	--	--	--	58,239	1 649
	Whitebark pine	15,567	--	--	--	15,567	441
	Grand fir	97,776	--	3,178	--	100,954	2 859
	Subalpine fir	36,082	1,417	5,269	--	42,768	1 211
	Engelmann spruce	49,059	7,941	272	--	57,272	1 622
	Juniper	--	--	--	--	--	--
	Aspen	--	--	--	--	--	--
	Cottonwood	428	--	--	--	428	12
	Other hardwoods	--	--	--	--	--	--
	All types	1,169,982	271,123	77,171	2,545	1,520,821	43 065
Private:							
	Douglas-fir	159,004	68,537	41,475	--	269,016	7 618
	Western hemlock	5,801	--	--	--	5,801	164
	Ponderosa pine	43,253	9,644	3,156	525	56,578	1 602
	Western white pine	--	4,067	--	--	4,067	115
	Lodgepole pine	53,686	68,017	15,976	--	137,679	3 899
	Larch	101,464	6,828	2,254	--	110,546	3 130
	Western redcedar	15,511	--	--	--	15,511	439
	Whitebark pine	--	--	--	--	--	--
	Grand fir	13,069	--	--	--	13,069	370
	Subalpine fir	1,807	--	2,349	--	4,156	118
	Engelmann spruce	26,913	15,252	3,821	--	45,986	1 302
	Juniper	--	--	314	--	314	9
	Aspen	7,965	2,004	--	--	9,969	283
	Cottonwood	1,232	--	--	--	1,232	35
	Other hardwoods	--	--	1,705	--	1,705	48
	All types	429,705	174,349	71,050	525	675,629	19 132
All owners:							
	Douglas-fir	921,419	133,967	92,270	823	1,148,479	32 521
	Western hemlock	5,801	--	--	--	5,801	164
	Ponderosa pine	130,315	11,304	8,583	2,778	152,980	4 332
	Western white pine	--	4,104	--	--	4,104	116
	Lodgepole pine	245,587	342,394	36,783	--	624,764	17 692
	Larch	299,131	13,509	19,378	156	332,174	9 406
	Western redcedar	79,925	--	--	--	79,925	2 263
	Whitebark pine	19,196	--	--	87	19,283	546
	Grand fir	140,870	1,210	4,404	--	146,484	4 148
	Subalpine fir	113,190	2,414	11,556	--	127,160	3 601
	Engelmann spruce	105,544	24,497	4,513	--	134,554	3 810
	Juniper	--	--	314	--	314	9
	Aspen	8,116	2,004	--	--	10,120	287
	Cottonwood	2,063	--	--	--	2,063	59
	Other hardwoods	--	--	1,710	--	1,710	48
	All types	2,071,157	535,403	179,511	3,844	2,789,915	79 002

[1]Less than .05 thousand cubic meters.

Table 15.--*Net volume of sawtimber on commercial timberland in northwestern Montana, by ownership class, forest type, and stand-size class, 1977*

Ownership class	Forest type	Stand-size class: Sawtimber	Poletimber	Sapling/seedling	Nonstocked	All classes
		Thousand board feet[1]				
State:						
	Douglas-fir	869,902	32,137	39,796	1,581	943,416
	Western hemlock	--	--	--	--	--
	Ponderosa pine	57,098	6,234	5,215	515	69,062
	Western white pine	--	91	--	--	91
	Lodgepole pine	187,681	77,593	18,431	--	283,705
	Larch	328,232	13,047	11,838	967	354,084
	Western redcedar	31,417	--	--	--	31,417
	Whitebark pine	11,208	--	--	260	11,468
	Grand fir	128,805	2,302	5,743	--	136,850
	Subalpine fir	345,754	646	14,796	--	361,196
	Engelmann spruce	151,631	3,087	2,231	--	156,949
	Juniper	--	--	--	--	--
	Aspen	561	--	--	--	561
	Cottonwood	1,319	--	--	--	1,319
	Other hardwoods	--	--	6	--	6
	All types	2,113,608	135,137	98,056	3,323	2,350,124
Forest industry:						
	Douglas-fir	2,574,840	78,461	129,434	2,328	2,785,063
	Western hemlock	--	--	--	--	--
	Ponderosa pine	382,588	--	20,284	12,583	415,455
	Western white pine	--	--	--	--	--
	Lodgepole pine	484,502	278,418	29,275	--	792,195
	Larch	602,539	--	60,165	--	662,704
	Western redcedar	262,970	--	--	--	262,970
	Whitebark pine	81,412	--	--	--	81,412
	Grand fir	443,083	--	13,348	--	456,431
	Subalpine fir	168,635	2,751	7,164	--	178,550
	Engelmann spruce	228,115	16,893	1,259	--	246,267
	Juniper	--	--	--	--	--
	Aspen	--	--	--	--	--
	Cottonwood	1,406	--	--	--	1,406
	Other hardwoods	--	--	--	--	--
	All types	5,230,090	376,523	260,929	14,911	5,882,453
Private:						
	Douglas-fir	602,705	132,538	119,051	--	854,294
	Western hemlock	22,010	--	--	--	22,010
	Ponderosa pine	198,049	22,478	14,907	2,614	238,048
	Western white pine	--	9,968	--	--	9,968
	Lodgepole pine	193,908	98,630	2,648	--	295,186
	Larch	391,986	9,126	1,449	--	402,561
	Western redcedar	56,092	--	--	--	56,092
	Whitebark pine	--	--	--	--	--
	Grand fir	32,405	--	--	--	32,405
	Subalpine fir	6,470	--	6,680	--	13,150
	Engelmann spruce	102,681	30,014	17,703	--	150,398
	Juniper	--	--	902	--	902
	Aspen	29,510	2,575	--	--	32,085
	Cottonwood	4,823	--	--	--	4,823
	Other hardwoods	--	--	1,901	--	1,901
	All types	1,640,639	305,329	165,241	2,614	2,113,823
All owners:						
	Douglas-fir	4,047,447	243,136	288,281	3,909	4,582,773
	Western hemlock	22,010	--	--	--	22,010
	Ponderosa pine	637,735	28,712	40,406	15,712	722,565
	Western white pine	--	10,059	--	--	10,059
	Lodgepole pine	866,091	454,641	50,354	--	1,371,086
	Larch	1,322,757	22,173	73,452	967	1,419,349
	Western redcedar	350,479	--	--	--	350,479
	Whitebark pine	92,620	--	--	260	92,880
	Grand fir	604,293	2,302	19,091	--	625,686
	Subalpine fir	520,859	3,397	28,640	--	552,896
	Engelmann spruce	482,427	49,994	21,193	--	553,614
	Juniper	--	--	902	--	902
	Aspen	30,071	2,575	--	--	32,646
	Cottonwood	7,548	--	--	--	7,548
	Other hardwoods	--	--	1,907	--	1,907
	All types	8,984,337	816,989	524,226	20,848	10,346,400

[1]International 1/4-inch rule.

Table 16.--*Net volume of growing stock on commercial timberland in northwestern Montana, by species and diameter class, 1977*

Species	Diameter class (inches at breast height)													
	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	All classes
	Thousand cubic feet													
Douglas-fir	101,538	115,164	121,392	123,365	104,706	99,984	79,509	49,503	35,060	22,818	14,618	10,772	13,226	891,655
Ponderosa pine	5,168	11,392	14,667	21,600	25,619	22,171	24,626	21,158	28,662	26,052	20,802	13,656	37,543	273,116
Western white pine	2,064	2,485	3,012	4,746	7,285	2,073	3,513	2,685	454	2,316	376	499	3,636	35,144
Lodgepole pine	194,788	173,839	108,628	52,283	29,983	7,743	1,814	1,846	654	139	--	--	--	571,717
Whitebark pine	485	521	1,143	2,937	5,248	3,968	4,047	3,249	1,578	788	389	272	--	24,625
Western larch	33,114	51,311	45,406	41,107	50,658	50,155	48,491	40,120	35,201	28,167	28,784	17,910	40,495	510,919
Grand fir	13,671	17,076	19,169	20,346	18,886	15,137	12,614	8,574	5,564	1,940	1,506	1,474	661	136,618
Subalpine fir	20,025	15,722	15,952	11,010	4,840	5,335	4,068	578	161	152	--	--	--	77,843
Engelmann spruce	16,373	15,217	19,984	23,963	19,886	14,721	13,094	8,338	6,649	3,793	3,053	2,407	3,161	150,639
Western hemlock	2,514	4,160	5,204	1,767	1,761	735	3,822	522	419	--	--	--	--	20,904
Western redcedar	3,327	3,649	5,541	7,306	3,620	4,722	3,405	2,669	1,178	456	1,001	729	4,334	41,937
Total softwoods	393,067	410,536	360,098	310,430	272,492	226,744	199,003	139,242	115,580	86,621	70,529	47,719	103,056	2,735,117
Aspen	2,343	4,861	5,230	3,140	361	857	916	1,009	--	--	--	473	458	19,648
Cottonwood	840	1,707	949	1,599	1,782	1,237	1,959	1,287	373	152	--	782	4,999	17,666
Other hardwoods	6,633	5,918	2,929	936	148	600	93	--	--	227	--	--	--	17,484
Total hardwoods	9,816	12,486	9,108	5,675	2,291	2,694	2,968	2,296	373	379	--	1,255	5,457	54,798
All species	402,883	423,022	369,206	316,105	274,783	229,438	201,971	141,538	115,953	87,000	70,529	48,974	108,513	2,789,915

Table 17.--*Net volume of sawtimber on commercial timberland in northwestern Montana, by species and diameter class, 1977*

Species	Diameter class (inches at breast height)												
	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-24.9	25.0-26.9	27.0-28.9	29.0+	All classes
	Thousand board feet, International 1/4-inch rule											
Douglas-fir	437,871	606,470	552,515	546,639	443,751	279,721	200,105	130,842	84,766	62,854	77,650	3,423,184
Ponderosa pine	39,855	97,977	134,818	125,240	144,051	126,655	173,655	158,124	126,925	85,310	247,848	1,460,458
Western white pine	13,371	26,266	41,122	11,541	19,295	14,736	2,553	13,314	2,178	2,926	21,541	168,843
Lodgepole pine	440,411	303,877	172,596	43,641	10,024	10,073	3,592	768	--	--	--	984,982
Whitebark pine	5,358	16,961	29,985	22,229	22,151	17,671	8,648	4,357	2,173	1,525	--	131,058
Western larch	193,776	244,722	303,479	300,512	290,358	240,226	213,815	175,199	179,986	111,710	250,745	2,504,528
Grand fir	69,555	106,247	100,747	80,441	64,134	41,723	25,975	8,988	6,957	6,775	3,050	514,572
Subalpine fir	61,797	57,811	25,689	28,192	21,443	3,067	888	843	--	--	--	199,730
Engelmann spruce	76,408	131,562	108,159	78,929	69,335	43,970	35,474	21,102	17,412	14,236	19,143	615,730
Western hemlock	18,170	8,025	8,958	3,739	20,344	2,807	2,298	--	--	--	--	64,341
Western redcedar	20,886	36,352	17,998	23,354	16,487	12,807	5,513	2,126	4,633	3,363	20,137	163,656
Total softwoods	1,377,458	1,636,270	1,496,066	1,264,457	1,121,373	793,456	672,516	515,663	425,010	288,699	640,114	10,231,082
Aspen	XXXX	16,508	1,863	4,362	4,567	4,941	--	--	--	2,224	2,155	36,620
Cottonwood	XXXX	8,257	9,103	6,126	9,492	6,014	1,711	697	--	3,585	23,494	68,479
Other hardwoods	XXXX	4,885	767	3,044	457	--	--	1,066	--	--	--	10,219
Total hardwoods	XXXX	29,650	11,733	13,532	14,516	10,955	1,711	1,763	--	5,809	25,649	115,318
All species	1,377,458	1,665,920	1,507,799	1,277,989	1,135,889	804,411	674,227	517,426	425,010	294,508	665,763	10,346,400

Table 18.--*Net volume of growing stock and sawtimber on commercial timberland in northwestern Montana, by ownership class and species, 1977*

Ownership class	Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce	Western hemlock	Western redcedar	Total softwoods	Aspen	Cottonwood	Other hardwoods	Total hardwoods	All species
	Species																
	GROWING STOCK																
	Thousand cubic feet																
State	172,927	29,688	9,644	123,457	10,446	116,181	23,329	41,538	50,049	459	7,510	585,228	300	2,411	5,526	8,237	593,465
Forest industry	490,788	174,945	21,032	302,965	14,098	281,585	96,598	27,399	63,864	13,346	22,686	1,509,306	7,152	3,502	861	11,515	1,520,821
Private	227,940	68,483	4,468	145,295	81	113,153	16,691	8,906	36,726	7,099	11,741	640,583	12,196	11,753	11,097	35,046	675,629
Total	891,655	273,116	35,144	571,717	24,625	510,919	136,618	77,843	150,639	20,904	41,937	2,735,117	19,648	17,666	17,484	54,798	2,789,915
	GROWING STOCK																
	Thousand cubic meters																
State	4 896	841	273	3 496	296	3 290	661	1 176	1 417	13	213	16 572	8	68	157	233	16 805
Forest industry	13 898	4 954	595	8 579	399	7 974	2 735	776	1 809	378	642	42 739	203	99	24	326	43 065
Private	6 455	1 939	127	4 114	2	3 204	473	252	1 040	201	332	18 139	346	333	314	993	19 132
Total	25 249	7 734	995	16 189	697	14 468	3 869	2 204	4 266	592	1 187	77 450	557	500	495	1 552	79 002
	SAWTIMBER																
	Thousand board feet, International 1/4-inch rule																
State	734,405	150,122	48,870	257,802	54,325	621,416	86,712	119,434	227,377	1,030	31,213	2,332,706	439	8,800	8,179	17,418	2,350,124
Forest industry	1,942,527	998,209	103,888	430,367	76,486	1,459,659	370,369	66,360	281,540	41,169	91,582	5,862,156	10,031	10,143	123	20,297	5,882,453
Private	746,252	312,127	16,085	296,813	247	423,453	57,491	13,936	106,813	22,142	40,861	2,036,220	26,150	49,536	1,917	77,603	2,113,823
Total	3,423,184	1,460,458	168,843	984,982	131,058	2,504,528	514,572	199,730	615,730	64,341	163,656	10,231,082	36,620	68,479	10,219	115,318	10,346,400

Table 19.--*Net volume of timber on commercial timberland in northwestern Montana, by class of timber, and softwoods and hardwoods, 1977*

Class of timber	Softwoods	Hardwoods	All classes
	Thousand cubic feet		
Sawtimber trees:			
Saw-log portion	1,721,217	18,615	1,739,832
Upper-stem portion	210,297	4,773	215,070
Total	1,931,514	23,388	1,954,902
Poletimber trees	803,603	31,410	835,013
All growing stock trees	2,735,117	54,798	2,789,915
Sound cull trees	14,874	943	15,817
Rotten cull trees	20,123	951	21,074
Salvable dead trees	121,623	1,072	122,695
All timber	2,891,737	57,764	2,949,501

Table 20.--*Net volume of growing stock on commercial timberland in northwestern Montana, by forest type and species, 1977*

Forest type	Species																All species	
	Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce	Western hemlock	Western redcedar	Total softwoods	Aspen	Cottonwood	Other hardwoods	Total hardwoods		
	Thousand cubic feet																	*Thousand cubic meters*
Douglas-fir	[illegible]	151,100	1,829	35,113		[illegible]	51,011	[illegible]	[illegible]	[illegible]	1,110	[illegible]	[illegible]	415	[illegible]	1,609	[illegible]	[illegible]
Western hemlock	331	--	--	695	--	350	411	391	440	3,183	--	5,801	--	--	--	--	5,801	164
Ponderosa pine	27,102	111,558	--	6,234	--	7,900	186	--	--	--	--	152,980	--	--	--	--	152,980	4 332
Western white pine	--	--	812	1,498	--	--	--	--	--	--	--	2,310	--	--	1,794	1,794	4,104	116
Lodgepole pine	43,760	8,823	1,772	426,669	847	88,780	9,797	14,988	12,313	320	2,371	610,440	10,798	2,873	653	14,324	624,764	17 692
Larch	[illegible]	13,977	3,188	55,116		186,582	[illegible]	[illegible]	8,188	1,991	[illegible]	[illegible]	-	1,148	[illegible]	[illegible]	[illegible]	[illegible]
Western redcedar	4,787	930	3,652	--	--	12,176	15,654	347	3,479	8,569	28,480	78,074	495	1,224	132	1,851	79,925	2 263
Whitebark pine	--	--	--	87	16,043	--	--	1,779	514	860	--	19,283	--	--	--	--	19,283	546
Grand fir	27,341	1,839	16,056	6,084	--	13,399	59,311	2,844	6,680	4,697	4,588	142,839	--	1,746	1,899	3,645	146,484	4 148
Subalpine fir	12,446	--	5,917	6,828	7,735	20,070	1,014	41,304	29,064	--	1,649	126,027	--	1,133	--	1,133	127,160	3 601
Engelmann spruce	10,446	700	779	11,048	--	19,191	7,421	5,278	69,536	--	573	124,972	--	5,592	3,990	9,582	134,554	3 810
Juniper	86	228	--	--	--	--	--	--	--	--	--	314	--	--	--	--	314	9
Aspen	--	661	839	--	--	--	--	--	--	--	--	1,500	6,466	2,154	--	8,620	10,120	287
Cottonwood	--	--	--	--	--	--	--	202	370	--	83	655	--	1,103	305	1,408	2,063	59
Other hardwoods	--	--	--	1,215	--	--	--	--	--	--	--	1,215	259	--	236	495	1,710	48
All types	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--
	Thousand cubic meters																	
All types	25 249	7 734	995	16 189	697	14 468	3 869	2 204	4 266	592	1 187	77 450	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 21.--*Net volume of sawtimber on commercial timberland in northwestern Montana, by forest type and species, 1977*

Forest type	Species																All species
	Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce	Western hemlock	Western redcedar	Total softwoods	Aspen	Cottonwood	Other hardwoods	Total hardwoods	
	Thousand board feet, International 1/4-inch rule																
Douglas-fir	2,690,840	732,444	9,028	151,391	--	796,473	116,434	9,298	64,760	4,840	4,086	4,579,594	--	1,448	1,731	3,179	4,582,773
Western hemlock	1,585	--	--	1,027	--	2,079	2,123	2,079	2,404	10,713	--	22,010	--	--	--	--	22,010
Ponderosa pine	92,251	574,617	--	14,696	--	40,005	996	--	--	--	--	722,565	--	--	--	--	722,565
Western white pine	--	--	4,467	5,592	--	--	--	--	--	--	--	10,059	--	--	--	--	10,059
Lodgepole pine	163,175	46,670	2,822	615,228	2,740	408,881	25,432	30,091	49,252	--	5,510	1,349,801	14,547	6,738	--	21,285	1,371,086
Larch	216,382	82,819	18,102	115,743	--	900,688	26,243	11,302	24,916	4,998	10,168	1,411,361	--	7,132	856	7,988	1,419,349
Western redcedar	23,493	4,961	20,485	--	--	62,555	73,170	1,792	19,129	19,021	116,923	341,529	2,622	5,640	688	8,950	350,479
Whitebark pine	--	--	--	260	85,703	--	--	2,681	2,410	1,826	--	92,880	--	--	--	--	92,880
Grand fir	[illegible]	[illegible]	[illegible]	[illegible]		[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	--	[illegible]	[illegible]	[illegible]	[illegible]
Subalpine fir	55,359	--	32,622	26,845	42,615	115,545	2,907	123,242	140,493	--	7,942	547,570	--	5,326	--	5,326	552,896
Engelmann spruce	52,722	4,125	4,485	37,249	--	101,587	32,785	13,617	281,617	--	1,935	530,122	--	21,411	2,081	23,492	553,614
Juniper	--	902	--	--	--	--	--	--	--	--	--	902	--	--	--	--	902
Aspen	--	2,575	1,486	--	--	--	--	--	--	--	--	4,061	19,451	9,134	--	28,585	32,646
Cottonwood	--	--	--	--	--	--	--	--	1,759	--	--	1,759	--	5,331	458	5,789	7,548
Other hardwoods	--	--	--	1,907	--	--	--	--	--	--	--	1,907	--	--	--	--	1,907
All types	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

Table 22.--*Net annual growth of growing stock and sawtimber on commercial timberland in northwestern Montana, by ownership class and species, 1977*

Ownership class	Species: Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce	Western hemlock	Western redcedar	Total softwoods	Aspen	Cottonwood	Other hardwoods	Total hardwoods	All species
	GROWING STOCK - *Cubic feet*																
State	3,825,635	665,548	153,572	3,735,110	-52,488	2,111,416	553,274	622,963	716,360	36,037	170,891	12,558,318	12,623	65,991	358,522	437,136	12,995,454
Forest industry	11,018,161	2,287,014	564,450	8,178,937	52,631	3,341,076	2,023,849	1,353,485	1,219,164	586,653	577,695	31,203,113	199,151	116,127	42,245	357,523	31,560,638
Private	8,672,211	1,677,010	362,480	4,093,178	551	2,700,888	259,740	578,144	1,190,281	424,343	407,369	20,366,195	148,670	355,117	478,107	981,894	21,348,089
Total	23,516,007	4,629,572	1,080,502	16,007,225	694	8,153,380	2,836,863	2,554,592	3,125,805	1,067,033	1,155,955	64,127,628	360,444	537,235	878,874	1,776,553	65,904,181
	GROWING STOCK - *Cubic meters*																
State	108 330	18 846	4 348	105 767	-1 486	59 789	15 667	17 640	20 285	1 587	4 839	355 612	357	1 869	10 152	12 378	367 990
Forest industry	312 000	64 761	15 984	231 601	1 490	94 609	57 309	38 327	34 523	16 612	16 358	883 574	5 640	3 288	1 196	10 124	893 698
Private	245 570	47 488	10 264	115 906	16	76 480	7 355	16 371	33 705	12 016	11 536	576 707	4 209	10 056	13 539	27 804	604 511
Total	665 900	131 095	30 596	453 274	20	230 878	80 331	72 338	88 513	30 215	32 733	1 815 893	10 206	15 213	24 887	50 306	1 866 199
	SAWTIMBER - *Board feet, International 1/4-inch rule*																
State	16,831,196	3,360,612	693,595	7,180,192	-264,626	7,559,009	2,074,991	2,674,920	3,162,264	41,019	738,008	44,051,180	55,095	187,712	783,068	1,025,875	45,077,055
Forest industry	43,250,130	14,217,855	2,925,731	15,215,020	208,796	9,859,552	7,695,042	1,097,518	6,935,394	967,242	991,993	103,364,273	230,011	122,756	2,419	355,186	103,719,459
Private	27,685,663	9,218,411	617,181	10,630,814	1,521	14,789,371	2,214,872	1,281,102	6,916,226	1,525,741	3,318,558	79,199,460	2,938,872	2,777,323	60,988	5,776,283	84,975,743
Total	87,766,989	26,796,878	4,236,507	33,026,026	-54,309	32,207,932	11,984,905	5,053,540	17,013,884	3,534,002	5,048,559	226,614,913	3,223,978	3,087,791	845,575	7,157,344	233,772,257

Table 23.--*Annual mortality of growing stock and sawtimber on commercial timberland in northwestern Montana, by ownership class, and softwoods and hardwoods, 1977*

Species group and ownership class	Growing stock		Sawtimber
	- *Cubic feet* -	- *Cubic meters* -	- *Board feet*[1] -
Softwoods:			
State	2,491,296	70 546	9,367,030
Forest industry	7,319,740	207 272	23,315,807
Private	2,977,375	84 310	7,646,913
Total	12,788,411	362 128	40,329,750
Hardwoods:			
State	971	28	--
Forest industry	--	--	--
Private	166,574	4 717	--
Total	167,545	4 745	--

[1]International 1/4-inch rule.

Table 24.--*Annual mortality of growing stock and sawtimber on commercial timberland in northwestern Montana, by cause of death and species, 1977*

Cause of Death	Species													All species
	Douglas-fir	Ponderosa pine	Western white pine	Lodgepole pine	Whitebark pine	Western larch	Grand fir	Subalpine fir	Engelmann spruce	Western redcedar	Total softwoods	Aspen	Total hardwoods	
	GROWING STOCK *Cubic feet*													
Insects	316,814	362,963	--	902,227	--	270,770	62,210	21,678	103,544	--	2,040,206	--	--	2,040,206
Disease	802,736	--	144,828	84,175	40,856	565,037	1,241,183	481,306	78,061	69,257	3,507,439	--	--	3,507,439
Fire	--	--	--	98,931	--	92,888	--	--	--	--	191,819	--	--	191,819
Animal	33,941	--	--	--	--	--	--	--	--	--	33,941	--	--	33,941
Weather	179,385	--	--	312,607	59,556	370,329	150,166	83,964	68,076	--	1,224,083	60,157	60,157	1,284,240
Suppression	--	--	--	277,916	--	--	--	--	--	--	277,916	--	--	277,916
Unknown	703,966	184,216	77,786	2,099,784	28,111	199,988	302,034	239,362	132,627	--	3,967,874	107,388	107,388	4,075,262
Logging	758,010	--	28,737	84,692	--	46,550	88,664	--	538,480	--	1,545,133	--	--	1,545,133
Total	2,794,852	547,179	251,351	3,860,332	128,523	1,545,562	1,844,257	826,310	920,788	69,257	12,788,411	167,545	167,545	12,955,956
	GROWING STOCK *Cubic meters*													
Insects	8 971	10 277	--	25 548	--	7 668	1 762	614	2 932	--	57 772	--	--	57 772
Disease	22 731	--	4 101	2 384	1 157	16 000	35 146	13 629	2 210	1 961	99 319	--	--	99 319
Fire	--	--	--	2 802	--	2 630	--	--	--	--	5 432	--	--	5 432
Animal	961	--	--	--	--	--	--	--	--	--	961	--	--	961
Weather	5 079	--	--	8 852	1 686	10 487	4 252	2 378	1 928	--	34 662	1 704	1 704	36 366
Suppression	--	--	--	7 870	--	--	--	--	--	--	7 870	--	--	7 870
Unknown	19 934	5 217	2 202	59 459	796	5 663	8 553	6 778	3 756	--	112 358	3 041	3 041	115 399
Logging	21 465	--	814	2 398	--	1 318	2 511	--	15 248	--	43 754	--	--	43 754
Total	79 141	15 494	7 117	109 313	3 639	43 766	52 224	23 399	26 074	1 961	362 128	4 745	4 745	366 873
	SAWTIMBER *Board feet, International 1/4-inch rule*													
Insects	1,271,578	1,402,733	--	2,259,268	--	1,317,683	--	--	562,431	--	6,813,693	--	--	6,813,693
Disease	2,799,117	--	253,408	--	227,172	3,421,008	5,991,957	2,039,393	423,167	348,482	15,503,704	--	--	15,503,704
Fire	--	--	--	--	--	556,187	--	--	--	--	556,187	--	--	556,187
Animal	194,204	--	--	--	--	--	--	--	--	--	194,204	--	--	194,204
Weather	612,867	--	--	974,253	265,121	1,941,522	557,869	440,784	379,130	--	5,171,546	--	--	5,171,546
Suppression	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Unknown	3,300,010	759,381	423,951	2,879,776	162,751	682,525	1,234,201	567,662	631,397	--	10,641,654	--	--	10,641,654
Logging	141,464	--	158,179	--	--	--	455,106	--	694,013	--	1,448,762	--	--	1,448,762
Total	8,319,240	2,162,114	835,538	6,113,297	655,044	7,918,925	8,239,133	3,047,839	2,690,138	348,482	40,329,750	--	--	40,329,750

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1982. Forest area and timber resource statistics for state and private lands in northwestern Montana, 1977. USDA For. Serv. Resour. Bull. INT-26, 29 p. Intermt. For. and Range Exp. Stn., Ogden, Utah 84401.

Presents land area, commercial timberland area, timber inventory, and growth and mortality data based on Resources Evaluation standards.

KEYWORDS: forest surveys (regional), forest area classification, stand volume

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